SAMGrid's place in Grid Services

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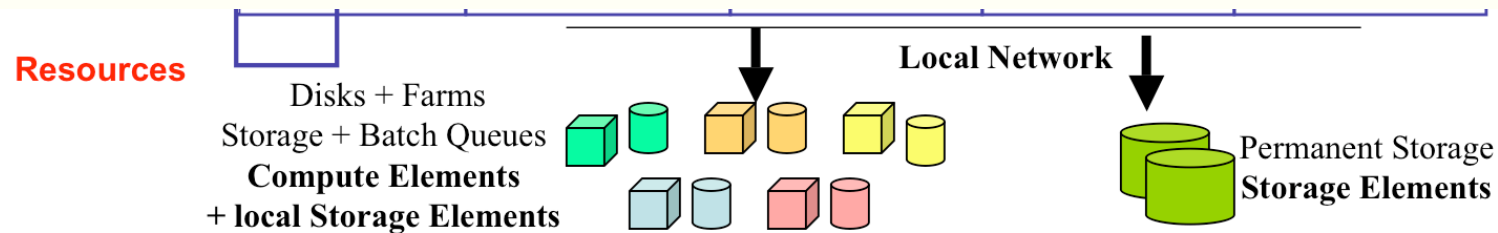**GDM 29 November 2005**

Roles of SAMGrid

What is the scope of Grid Services V0.2
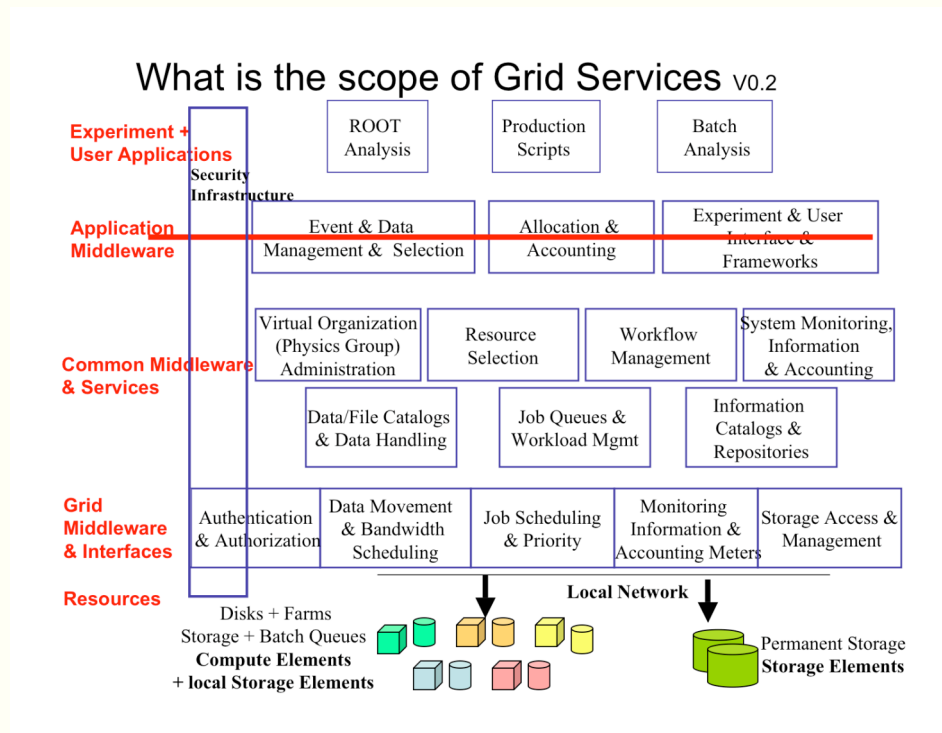
SAMGrid relates to nearly all Grid Services

◆ Sometimes by design

◆ Sometimes by necessity [we need it to work]

◆ Show current state and future ideas

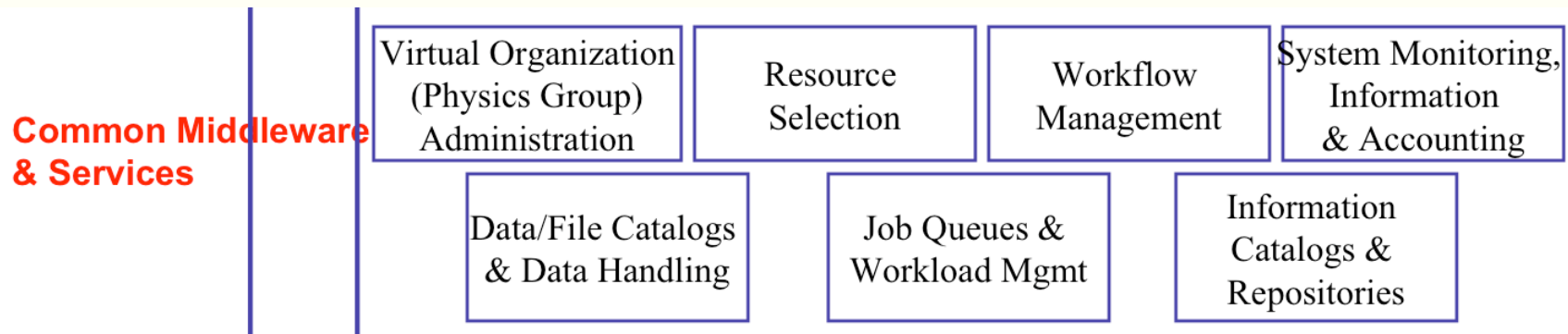◆ ... From the bottom up ...

Resources

- ◆ SAM DH manages storage elements with a proprietary protocol
  - ❖ SAM can deliver file locations for dCache (application moves)
  - ❖ SAM keeps replica information in DB (single point)
  - ❖ Future: Implement/use SRM interface, perhaps split off replica catalog

- ◆ SAM DH can interface to local batch system (rare use)

- ◆ SAMGrid interfaces to Grid job managers (Condor)

Grid Middleware

| Grid Middleware & Interfaces	Authentication & Authorization	Data Movement & Bandwidth Scheduling	Job Scheduling & Priority	Monitoring Information & Accounting Meters	Storage Access & Management

- ◆ SAMGrid implements or uses these boxes

- ◆ AA: SAM specific implementation [DH] and Grid Tools. Moving towards Grid Tools (VOMS)

- ◆ Data Movement: SAM DH moves files with a variety of protocols (GridFtp, krcp), or relies on application to move. No bandwidth scheduling

- ◆ Job Sched/Pri: Rely on batch system/Condor

- ◆ Monitoring: Proprietary monitoring. Hooks to Grid monitoring

- ◆ Storage A&M: For SAM cache own implementation. SRM

Common Middleware

Common Middleware & Services

Virtual Organization (Physics Group) Administration	Resource Selection	Workflow Management	System Monitoring, Information & Accounting
Data/File Catalogs & Data Handling	Job Queues & Workload Mgmt	Information Catalogs & Repositories	

- ◆ Catalogs: DB - The Heart of SAM DH. (All use same schema) Split off; fragment?
- ◆ Job queues/Workload: Rely on batch system/Condor (Load balancing resource manager)
- ◆ Information catalogs: SAM DB keeps project, file history. Split off; fragment?
- ◆ VO Admin: User registration, service certificates. VOMS/VOMRS
- ◆ Resource selection: Analysis jobs - by user; production - by human management Use knowledgeable resource manager
- ◆ Workflow management: SAMGrid coupled to workflow. Use RunJob to split off application specifics

Application Middleware
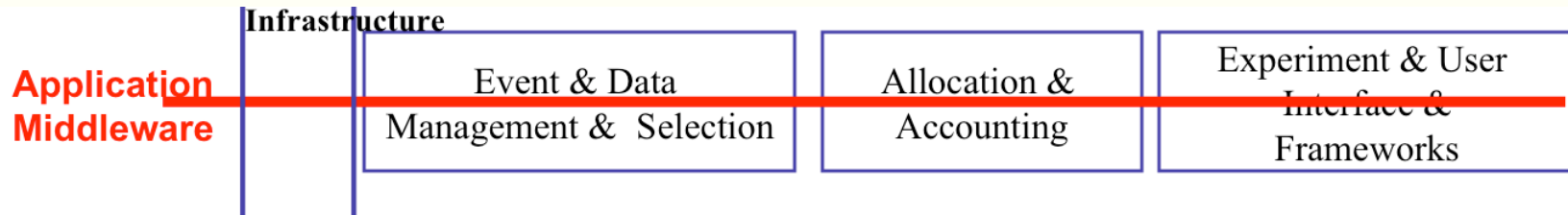
- Event management & Data Selection: SAM DB keeps file metadata; hooks & interface to experiment databases (e.g. Runs). SAM Dimensions Language (Redo)

- Allocation & Accounting: Groups & Quotas in SAM cache (Fix). Project info kept (no uniform statistics). Rely on batch system. Resource broker?

- Frameworks: SAM supplies C++ and Python API. Experiment interfaces to framework

Applications

Experiment + User Applications Security	ROOT Analysis	Production Scripts	Batch Analysis

◆ Root: Experiment interfaces to C++ or Python API (inside Root or wrap around Root)

◆ Production Scripts: Experiment written (Python API)

◆ Batch analysis: Use experiment

Drivers in FY 06

◆ Drivers

   ❖ CDF (need stable world wide DH; interface to Glide-in)

   ❖ DØ (stable ww DH; SAMGrid for streamline production & perhaps analysis)

   ❖ MINOS (stable ww DH; streamline access [Web Services?])

   ❖ Upper storage (SRM)

   ❖ Grid Services (SAMGrid as Grid Services)

Projects FY 06

◆ **Fulfill current needs**

  ❖ Complete CDF Deployment

  ❖ Migrate DØ to v7

  ❖ SQLBuilder

  ❖ DH Monitoring

  ❖ DB Server Speed Up

  ❖ Testing

◆ **SAMGrid and DØ**

  ❖ LCG/OSG Integration, MC

Project FY06

Starting to plot SAMGrid's future

◆ Work started
  - ❖ LCG/OSG Integration
  - ❖ SAM DH as an Edge Service ("SAM on the fly")

◆ Planning started
  - ❖ SRM Interface

◆ Initial discussions
  - ❖ Condor glide in
  - ❖ SAM Client as a web service

◆ Still in people's heads
  - ❖ DB and Service breakup